

The Philosophy of Science

- The universe behaves in a consistent and predictable manner, independent of whom the observer is or where the observer happens to be. **Physics is the branch of science which seeks to study, understand, and quantify the interaction of all matter and energy.**
- We study matter and energy through observation. Data collection and analysis reveal simple relationships between measurable physical quantities or variables. These observations become postulates, theories, or laws of science.
- We use the language of mathematics to express the relationships among variables as formal equations. These equations are constantly being tested in every observable event and experiment.
- If a conflict arises between an observed fact and theory, we trust our observations and seek to discover why the conflict exists. If necessary, the scientific community must modify the theory to match trusted, repeatable observations.
- We can solve physics problems using a standard methodology. This Appendix has suggested an 8-step problem solving method which can be applied to any given problem. When executed properly, there should be a high degree of confidence in the solution obtained from such a method.